AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A particulate filter for diesel engines, comprising a metal shell or casing defining a cavity with an intake pipe and an outlet pipe, and a filtering body made of ceramic foam set in the path of communication between said intake pipe and said outlet pipe,

wherein said filtering body is made up of a plurality of separate filtering elements made of ceramic foam and having a substantially ~~plane~~planar and elongated shape, which are set about a longitudinal axis of the shell in such a way as to define, inside the shell, an inner chamber set inside the array of filtering elements and at least one outer chamber set outside the array, the said chambers respectively communicating with said intake pipe and with said outlet pipe, or vice versa, in such a way that, during use, the flow of the engine exhaust gases that traverse said shell passing from the intake pipe to the outlet pipe (or vice versa) is forced to traverse the ~~aforesaid~~ filtering elements, thus assuming a component of radial velocity with respect to the longitudinal axis of the shell.

2. (Original) The filter according to Claim 1, wherein two concentric arrays of filtering elements are provided.

3. (Original) The filter according to claim 2, wherein the filtering elements of each array are four in number and are set orthogonally to one another and in pairs facing one another, according to the sides of a rectangle.

4. (Original) The filter according to Claim 3, wherein the filtering elements of two adjacent sides rest along their adjacent edges on radial support that project inwards from a cylindrical wall of the shell.

5. (Original) The filter according to Claim 4, wherein a ceramic pad is set between each radial support and the elements resting thereon.

6. (Currently Amended) The filter according to Claim 4, wherein said cylindrical wall is connected to one end to a bell-~~like~~ shaped structure having a neck that defines the aforesaid intake pipe (or outlet pipe), said structure being closed at its opposite end by a diaphragm which has peripheral openings that force the flow of gas entering (or exiting) the shell to pass into the outer chamber (A) set outside the filtering elements, the opposite end of the cylindrical wall being closed by a diaphragm which has a central neck defining the outlet 9 (intake) pipe and communicating with the inner chamber (B) set inside the array of filtering elmeents.

7. (Original) The filter according to Claim 4, wherein the arrays of filtering elements define, outside them, four chambers (A) which are independent of one another.

8. (Original) The filter according to Claim 4, wherein the adjacent and the facing elements of the two arrays define them four intermediate chambers (C) which are independent of one another.

9. (Canceled)

10. (New) The filter according to Claim 1 wherein each filtering element is obtained by a process including the preparation of a filtering body consisting of a ceramic foam, on which an oxidizing catalyst is deposited. In the process the ceramic foam is produced, starting from a ceramic-material powder-based suspension (slurry), by preparing a preform of polymeric foam material and impregnating the preform with the aforesaid ceramic-powder slurry so as to distribute the slurry evenly on the preform, and by then subjecting the body thus obtained to a thermal cycle of sintering in such a way as to pyrolize the polymeric material and obtain a high-porosity ceramic material having a structure similar to that of the starting polymeric material. The ceramic-material powder is chosen from among mullite ($3Al_2O_3$-$2SiO_2$) powder, alumina (Al_2O_3) powder, and zirconia (ZrO_2) powder, or mixtures thereof, having a purity of over 97%, mean particle size of less than 2 µm, and a specific surface at least greater than 5 m^3/g.

11. (New) A process according to Claim 1, characterized in that the mullite powder has a purity preferably of over 98.7%, a mean particle size of approximately 0.7 µm, and a specific surface B.E.T. preferably greater than 17.

12. (New) A process according to Claim 1, charcterized in that the alumina powder has a purity of over 99%, preferably of over 99.9%, a mean of particle size of less then 1 µm,

preferably of the order of 0.3 μm, and a specific surface B.E.T. greater than 7 m^3/g, preferably of the order of 10 m^3/g.

13. (New) A process according to Claim 1, characterized in that the zirconia powder has a mean particle size of less than 0.8 μm, preferably of the order of 0.35 μm, and a specific surface B.E.T. greater than 5 m^3/g, preferably of the order of 6.9 m^3/g.

14. (New) A process according to claim 1, characterized in that the slurry comprises between 57 wt% and 62 wt% of alumina powder with respect to the total powder, and from 38 wt% to 43 wt% of zirconia powder.

15. (New) A process according to Claim 1, characterized in that the slurry comprises between 36 wt% and 41 wt% of mullite powder with respect to the total powder, and from 59 wt% to 64 wt% of zirconia powder.

16. (New) A process according to Claim 1, characterized in that the slurry comprises 26-35 vol% of zirconia powder with respect to the alumina powder.

17. (New) A process according to Claim 1, characterized in that the slurry comprises 40-50 vol% of zirconia powder with respect to the mullite powder.

18. (New) A process according to Claim 1, characterized in that the thermal cycle of sintering comprises a first phase of heating up to a temperature of 300-500°C at a rate of 0.5 to 1.5°C/min, a second phase of heating up to the maximum temperature at a rate of 3 to 10°C/min, and a subsequent cooling at a rate of 3 to 10°C/min.

19. (New) A process according to Claim 8, characterized in that the maximum temperature is 1500°C in the case of alumina toughened with zirconia, and 1600°C in the case of mullite toughened with zirconia.

20. (New) A process according to Claim 1, characterized in that the slurry comprises an electrosteric dispersant and a binding agent, preferably polyethylene oxide.